

REMARKS

Claims 1-28 are all the claims pending in the application. Claims 26-28 have been newly added.

Examiner Interview

Applicant's representative conducted a telephone interview with the Examiner on November 22, 2005. Applicant's representative thanks the Examiner for the courtesies extended at that time. During the interview, the differences between the claimed invention and the cited references were discussed as well as the lack of motivation for combining Isobe with either Luxem or Hisano. Also, amendments to claims 1-3 and 20 and the addition of new claims 25-28 were discussed.

As explained in the interview, the amendments to claims 1-3 and 20 are merely for purposes of clarification. Claim 20 was amended so that it is singularly dependent on claim 6 and no longer depends from claims 1-3. Claims 25-28 contain similar subject matter as claim 20 and were added to cover the dependencies of this subject matter from claims 1-3, which were deleted from claim 20. Therefore, the amendment of the dependency of claim 20 and the addition of claims 25-28 were also for purposes of clarification, rather than substantive.

Pursuant to the interview, Applicant has provided the arguments against the obviousness rejections in this formal Amendment as set forth below. As argued in the interview, there is no motivation for combining Isobe with either Luxem or Hisano. Isobe is directed to determining an amount of toner in order to determine when a cartridge is running out of toner. In the process of doing this, Isobe teaches that a running tally (X) is kept, which is incrementally increased by a

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newly measured amount (ΔX). The Examiner asserts that ΔX is the claimed second amount. However, as acknowledged by the Examiner, ΔX is deficient with respect to the claimed second amount. The Examiner attempts to correct this deficiency with other references, including Luxem and Hisano. However, these additional references fail to correct this deficiency of Isobe at least because none of them teach adding the *claimed* second amount to a first amount to reach a total amount. Since Isobe also lacks this teaching, even the combination of references is deficient.

Allowable Subject Matter

Applicant thanks the Examiner for indicating that claims 17 and 22 would be allowed if rewritten in independent form. However, Applicant respectfully requests that the Examiner hold in abeyance such rewriting until the Examiner has had an opportunity to reconsider (and withdraw) the prior art rejection of the other claims.

Obviousness Rejections

I. Rejections under 35 U.S.C. § 103(a) in view of U.S. Patent Application No. 2002/0025173 to Isobe et al. (“Isobe”) and newly cited U.S. Patent No. 6,393,228 to Hisano.

The Examiner has rejected claims 1 and 24-25 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Isobe and newly cited Hisano. This rejection is respectfully traversed.

A. Independent Claim 1

The Examiner alleges that most of the features of independent claim 1 are disclosed by Isobe, but concedes that Isobe does not teach storing an offset value indicating a consumption rate of toner in a second region in which a toner image is not formed. Applicant agrees that Isobe is deficient in at least this regard. In order to make up this deficiency, the Examiner

applies Hisano alleging that this reference teaches a toner amount measuring apparatus that is used to measure both an amount of toner being consumed for a toner image and the toner amount for a fogging effect. The Examiner then further alleges that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Isobe to take into account the toner amount being consumed due a fogging effect as is taught by Hisano. (O.A. pg.3). Moreover, the Examiner alleges that the motivation to do so is to precisely measure an amount of consumed toner that will ensure a formation of a high quality image. (O.A. pg.3)

Applicant respectfully disagrees with the Examiner's analysis, and submits that one of ordinary skill would not have been motivated to modify Isobe in view of Hisano as the Examiner has alleged. Instead, the Examiner selectively chooses specific elements from the references using the Applicant's claims as a guide. Yet, it has been held that "[i]t is not obvious to selectively pick and choose elements or concepts from the various references so as to arrive at the claimed invention by using the claims as a guide. *Ex Parte Clapp*, 227 USPQ 972 (Bd. Pat. App. & Interf. 1985).

For example, Isobe teaches a method of measuring a toner total utilization amount X based on the direct measurement of actual toner supplied from each of the toner replenishing containers 120Y, 120M, 120C and 120K. (Fig. 14, par. [0267]). The main objective being to judge whether or not the toner replenishing containers are at the end of their life. (See par. [0280]). This reference discloses that this determination is performed optimally by measuring the revolutions of a rotary flag 32 arranged on the rotating shaft of the toner replenishing driving

part, i.e. “remaining amount of toner will be nearly zero after about 2000 revolutions”. (Fig. 18, par. [0241], [0243]). Thus, the toner detecting mechanism disclosed in Isobe measures a value ΔX corresponding to a new amount of toner usage, and then adds this amount to amount X to obtain a new total. (see pg. 16, par. [357]-[359]). Thus, Isobe teaches a method of determining the total amount of toner used by employing a single type of detected value, which is totaled as subsequent values are detected to determine the amount of toner consumed from a replenishment container. (i.e. one of 120Y, 120M, 120C or 120K).

On the other hand, Hisano teaches a method of controlling information. Hisano’s method uses toner amount measuring units 120a, 120b to determine the toner amount of a developed toner image 161. (col. 10, lines 16-27) The measuring unit 120b measures the amount of “residual toner,” while the measuring unit 120a measures an amount of both the “fog” and the developed toner image 161. (see fig. 13). But, Hisano then teaches that the measured values from 120a and 120b are used by an analysis circuit 125 and eventually input into controller 130 which “selectively and discriminately” uses these signals to “control the image forming condition” to form a “high quality image.” (col. 11, lines 27-38). Thus, Hisano only determines the amount of toner in the developed toner image 161 so as to control image formation, not so as to total the amount of toner consumed.

Thus, one of ordinary skill in the art, following the teachings of the references as a whole, would not have been taught to combine: (1) the method of determining a total amount from a single type of detected value, as in Isobe; with (2) the measuring of a “fog” (alleged second amount) amount from Hisano to arrive at the claimed invention. It is only by impermissibly

following Applicant's own teachings that the Examiner has allegedly arrived at the claimed invention.

Secondly, even if one of ordinary skill in the art were motivated to combine Hisano with Isobe as the Examiner has alleged, any such combination would still not teach or suggest all the elements as claimed. Applicants respectfully submit that neither Isobe, Hisano, nor any combination thereof, teaches or suggests a calculator "determining a total amount of toner consumed based on the first and second amounts." Isobe, as discussed above, does not teach any second amount, whereas Hisano fails to teach a method for determining a total amount of consumption at all.

For example, as discussed above, Hisano teaches that controller 130 selectively and discriminately uses the output signals from the optical sensor 126 to measure the toner amount of a developed toner image (first amount), and a toner amount of "fog" (second amount) occurring in the background. (col. 11, lines 27-37) But, Hisano fails to teach "determining a total amount of toner consumed based on the first and second amount." To the contrary, Hisano describes the function of controller 130 as controlling the image forming condition to form a high quality image, not as a totalizer for toner consumed based on a first and second amount. (col. 11, lines 35-37). Instead, the controller 130 of Hisano attempts to measure solely the developed toner image area to control the image forming condition so as to achieve an image of high quality.

Additionally, since Isobe teaches a method of determining the total amount of developer used by employing a single type of detected value, adding a second amount (i.e. "fog") would result in an invalid fictitious total consumption amount, primarily because Isobe measures the

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developer as it leaves the container; i.e., before it is separated into a first and second amount. Stated another way, Hisano determines the amount of toner in a particular area of an image, wherein the toner has already left the cartridge. Thus, adding the amounts of Hisano to Isobe's already disbursed amount, would erroneously include the "fog" amount of toner twice. Thus, the combination fails to teach or suggest "determining a total amount of toner consumed based on the first and second amounts" as recited in claim 1.

Thus, Applicant respectfully submits that claim 1 is patentable over the applied references, and that the Examiner reconsider and withdraw this rejection.

B. Dependent Claims 24 and 25

Applicant respectfully submits that dependent claim 24 is allowable at least by virtue of its dependency, and is also separately patentable over the applied references. Claim 25 is dependent upon claim 11, which is not rejected under the applied references. Accordingly, claim 25 should be allowable.

Regarding claim 24, Applicant respectfully submits that the applied references fail to teach or suggest that "said offset value is a consumption rate in a specific amount of time; and wherein said second amount of toner consumed is determined based on said offset value and said operation time period." Additionally, the Examiner has failed to point out any portion of the applied references that teach or suggest this feature.

Thus Applicant respectfully submits that claims 1, 24 and 25 are patentable over the applied references and requests that the Examiner withdraw this rejection.

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II. Rejections under 35 U.S.C. § 103(a) in view of U.S. Patent Application No. 2002/0025173 to Isobe et al. (“Isobe”) and U.S. Patent Application No. 2002/0044785 to Luxem.

The Examiner has rejected claims 2, 3, 6-13, 16, 18-21 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Isobe in view of Luxem. The Examiner alleges that many features of the claims are disclosed by Isobe, but concedes that Isobe fails to teach or suggest second or third amounts of toner being test images. Applicant agrees that Isobe is deficient in at least this regard. To correct this deficiency, the Examiner applies Luxem alleging that one of ordinary skill in the art would have been motivated to modify Isobe to include Luxem’s toner amount detection system using test images printed onto a transfer surface because the direct measurement of the amount of toner transferred to a printable surface permits very precise control of the printing process.

Applicant respectfully disagrees with the Examiner’s analysis, and submits that this motivation for very precise control of the printing process has nothing to do with measuring the total toner consumption including that in non-image areas. As discussed above, Isobe discloses a toner detecting mechanism which measures the total amount of toner used by employing a single detecting technique, which accounts for all toner consumed, and therefore does not require the addition of a second (fogging) amount as alleged by the Examiner. (i.e. rotations of the screw as fed from the toner source). Thus, the motivation provided by the Examiner is completely invalid and there is no other motivation provided in the references to combine the Isobe and Luxem references.

Again, the Examiner is selectively picking and choosing elements from the references using Applicant's claims as a guide. In this rejection, the Examiner applies Luxem alleging that it teaches a second and third amount. However, Applicant submits that the Examiner has misread the reference. Luxem simply teaches using two measurements to arrive at optimum print quality. Initially, Luxem discloses a measurement of the amount of toner transferred to a printable substrate. (pg. 1, par. [0005], i.e. paper, etc.). Alternatively, Luxem teaches measuring the toner applied to a transport belt. (pg.1, par. [0005]). Further, Luxem teaches that the alternative is desired since printing of the substrate only occurs when the amount of toner applied to the transport belt is minimized, thus saving substrate material. This reference is clearly directed to optimizing print quality by comparing individual toner amounts applied on a print or transfer belt, and fails to teach or suggest any method for "determining a total amount of toner based on the first and second amounts."

Thus, one of ordinary skill would find no motivation, if presented with the Isobe and Luxem references, teaching them to combine these to arrive at the claimed invention. Again, the Examiner is selectively picking and choosing elements, attempting to combine a total consumption amount from Isobe to arrive at the claimed "determining a total amount of toner consumed based on the first and second amounts," simply by finding a second amount of toner consumed by forming a test image within another reference (i.e. Luxem). Neither Isobe nor Luxem teach or suggest "determining a total amount of toner consumed based on a first and second amount," as claimed. Similarly to the discussion above with regard to the Isobe and Hisano references, even if it were possible to modify Isobe as the Examiner has alleged,

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Applicants respectfully submit that neither Isobe, Luxem, nor any combination thereof, teaches or suggests a calculator “determining a total amount of toner consumed based on the first and second amounts.” Again, adding any additional amount to the total toner consumption of Isobe results in a total that fails to represent total toner consumption. It invalidly results in a value that exceeds the total toner consumption amount.

Thus, since there is no motivation to combine the Isobe and Luxem references, and even if combined the result does not render a total consumption as recited in claims 2, 3, 6-13, 16, 18-21 and 23, Applicant respectfully submits that these independent and dependent claims are patentable over the applied references.

III. Rejections under 35 U.S.C. § 103(a) in view of U.S. Patent Application No. 2002/0025173 to Isobe et al. (“Isobe”) and U.S. Patent Application No. 2002/0044785 to Luxem in further view of U.S. Patent No. 5,505,010 to Izumizaki et al. (“Izumizaki”)

The Examiner has rejected claims 4 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Isobe in view of Luxem, in further view of Izumizaki. Claims 4 and 14 depend from claims 3 and 13 respectively. Even if one of ordinary skill in the art were motivated to modify the combination of Isobe and Luxem with Izumizaki as suggested by the Examiner, the proposed modification still would not correct the above noted deficiencies of the Isobe and Luxem combination. Therefore, claims 4 and 14 are allowable over even the combined teachings of Isobe, Luxem and Izumizaki.

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IV. Rejections under 35 U.S.C. § 103(a) in view of U.S. Patent Application No. 2002/0025173 to Isobe et al. (“Isobe”) and U.S. Patent Application No. 2002/0044785 to Luxem in further view of Japanese Patent Application No. JP 2001-042729 to Shirmura et al. (“Shirmura”).

Claims 5 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Isobe in view of Luxem and further in view of Shimura et al. (JP2001/042729). Claims 5 and 15 depend from claims 3 and 13 respectively. Even if one of ordinary skill in the art were motivated to modify the combination of Isobe and Luxem with Shimura as suggested by the Examiner, the proposed modification still would not correct the above noted deficiencies of the Isobe and Luxem combination. Therefore, claims 5 and 15 would be allowable over even the combined teachings of Isobe, Luxem and Shimura.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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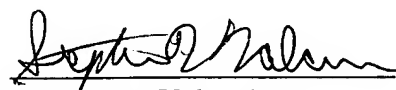
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